

Claims

1. A heat exchanger for a fluid circuit through which
a heat transfer fluid runs, comprising: at least one
5 manifold delimiting an inlet and an outlet for the heat
transfer fluid; circulation ducts for the heat transfer
fluid which are inserted between the inlet and the
outlet; heat-exchange surfaces associated with the heat
transfer fluid circulation ducts and able to be swept
10 by a flow of air that is to be conditioned; cavities
designed to contain a heat storage fluid, situated
adjacent to the heat transfer fluid circulation ducts;
whereby the cavities associated with the heat-exchange
surfaces in such a way that the heat storage fluid is
15 able to exchange heat with the air flow that sweeps the
heat-exchange surfaces if the circulation of the heat
transfer fluid through the circuit is stopped.

2. The heat exchanger as in claim 1, further
20 comprising a multiplicity of parallel flat tubes
having two opposed large faces and in which the ducts
and the cavities are formed, and a multiplicity of
corrugated inserts forming heat-exchange surfaces, each
of which is arranged between two adjacent tubes.

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3. The heat exchanger as in claim 2, wherein each
flat tube is made up of two parts in the form of
plates, namely a part in which the ducts are formed and
a part in which the cavities are formed.

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4. The heat exchanger as claimed in claim 2, wherein
each flat tube is of one piece, and in that the ducts
are arranged along one of the large faces, while at
least one cavity is arranged along the other large
35 face.

5. The heat exchanger as claimed in claim 2, wherein
each flat tube is of one piece, the ducts are arranged
in groups between the large faces, and the cavities are

arranged in groups between the large faces, the groups of ducts alternating with the groups of cavities.

6. The heat exchanger as claimed in claim 1, further
5 comprising a multiplicity of flat tubes in the shape of a hairpin or of a capital U, in which the ducts and the cavities are formed, and a multiplicity of corrugated inserts forming heat-exchange surfaces, each of which is arranged between two adjacent tubes.

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7. The heat exchanger as claimed in claim 6, wherein each U-shaped flat tube is of one piece.

8. The heat exchanger as claimed in claim 1, further
15 comprising a flat tube in the form of a coil in which the ducts and the cavities are formed.

9. The heat exchanger as claimed in claim 8, wherein
20 the coil-shaped flat tube is formed of a multiplicity of U-shaped inner tubes in which the ducts are formed and of a coil-shaped outer tube surrounding the U-shaped tubes and in which the cavities are formed.

10. The heat exchanger as in claim 2, wherein the
25 tubes are formed by extruding a metallic material, advantageously one based on aluminum.

11. The heat exchanger as in claim 6, wherein the tubes
30 are formed by extruding a metallic material, advantageously one based on aluminum.

12. The heat exchanger as in claim 1, further
comprises at least one conduit which communicates with the cavities.

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13. The heat exchanger as in claim 2, further comprises at least one conduit which communicates with the cavities.

14. The heat exchanger as in claim 6, further comprises at least one conduit which communicates with the cavities.

5 15. The heat exchanger as in claim 1, wherein it is made in the form of an evaporator designed to have a cooling fluid running through it and to cool the flow of air which sweeps across the heat-exchange surfaces, and in that the heat storage fluid is a phase-change
10 fluid with a melting point of between 0°C and 10°C, preferably between 5°C and 7°C, so that the heat storage fluid is capable of cooling the flow of air which sweeps across the heat-exchange surfaces if the circulation of the cooling fluid is temporarily
15 stopped.

16. The heat exchanger as in claim 2 ,wherein it is made in the form of an evaporator designed to have a cooling fluid running through it and to cool the flow
20 of air which sweeps across the heat-exchange surfaces, and in that the heat storage fluid is a phase-change fluid with a melting point of between 0°C and 10°C, preferably between 5°C and 7°C, so that the heat storage fluid is capable of cooling the flow of air
25 which sweeps across the heat-exchange surfaces if the circulation of the cooling fluid is temporarily stopped.

17. The heat exchanger as in claim 6, wherein it is made in the form of an evaporator designed to have a
30 cooling fluid running through it and to cool the flow of air which sweeps across the heat-exchange surfaces, and in that the heat storage fluid is a phase-change fluid with a melting point of between 0°C and 10°C,
35 preferably between 5°C and 7°C, so that the heat storage fluid is capable of cooling the flow of air which sweeps across the heat-exchange surfaces if the

circulation of the cooling fluid is temporarily stopped.

18. The heat exchanger as in claim 1, wherein it is
5 made in the form of a heating radiator designed to have
a heating fluid running through it and to heat up the
flow of air which sweeps across the heat-exchange
surfaces, and in that the heat storage fluid
constitutes a reserve of heat, so that the heat storage
10 fluid is capable of heating up the flow of air which
sweeps across the heat-exchange surfaces if the
circulation of the heating fluid through the heating
radiator is temporarily stopped.

15 19. The heat exchanger as in claim 2, wherein it is
made in the form of a heating radiator designed to have
a heating fluid running through it and to heat up the
flow of air which sweeps across the heat-exchange
surfaces, and in that the heat storage fluid
20 constitutes a reserve of heat, so that the heat storage
fluid is capable of heating up the flow of air which
sweeps across the heat-exchange surfaces if the
circulation of the heating fluid through the heating
radiator is temporarily stopped.

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20. The heat exchanger as in claim 3, wherein it is
made in the form of a heating radiator designed to have
a heating fluid running through it and to heat up the
flow of air which sweeps across the heat-exchange
30 surfaces, and in that the heat storage fluid
constitutes a reserve of heat, so that the heat storage
fluid is capable of heating up the flow of air which
sweeps across the heat-exchange surfaces if the
circulation of the heating fluid through the heating
35 radiator is temporarily stopped.

21. The heat exchanger as claimed in claim 15, wherein
the heat storage fluid is a phase-change fluid with a

melting point of between 60 and 90°C, preferably between 70 and 80°C.

22. The heat exchanger as in claims 15, wherein the
5 heat storage fluid is chosen from paraffins, hydrated salts and eutectic compounds.

23. The heat exchanger as in claims 16, wherein the
10 heat storage fluid is chosen from paraffins, hydrated salts and eutectic compounds.

24. The heat exchanger as in claims 17, wherein the
heat storage fluid is chosen from paraffins, hydrated salts and eutectic compounds.

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25. The heat exchanger as in claim 15, wherein the heat storage fluid is water.

26. The heat exchanger as in claim 16, wherein the heat
20 storage fluid is water.